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(56) Documents cited
GB 1552970 GB 1183122 GB 0971335
GB 1235702 GB 1008942 GB 0410587
GB 1204111

(58) Field of search
G4V

(54) Remote metering system

(57) A metering system for utilities such as gas, electricity or water for heating comprises a controller 10 and a meter 11 which are physically separated and the meter is remotely located adjacent the outside of the building where the main supply enters the building. The meter has associated with it a contactor 12 arranged to interrupt the supply of utility when the prepaid credit runs out. Control signals from the controller to the meter and/or contactor are sent by means of low current cables 14 or means of ripple signals in the mains supply.

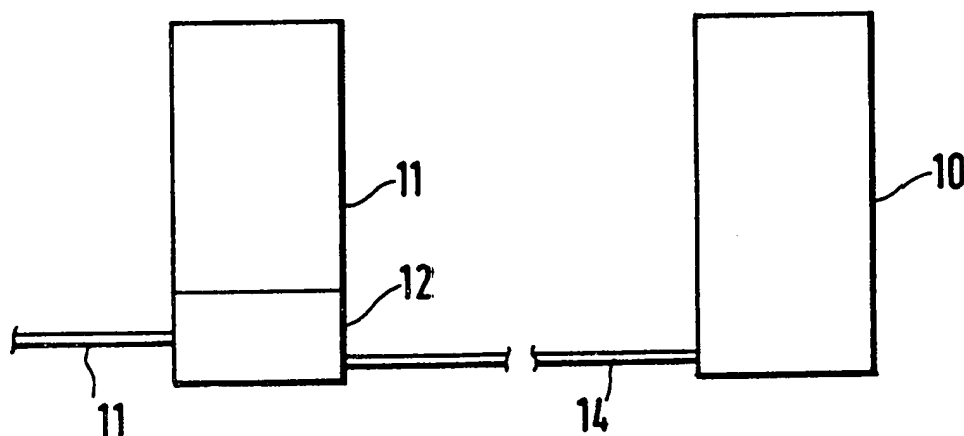


FIG.1.

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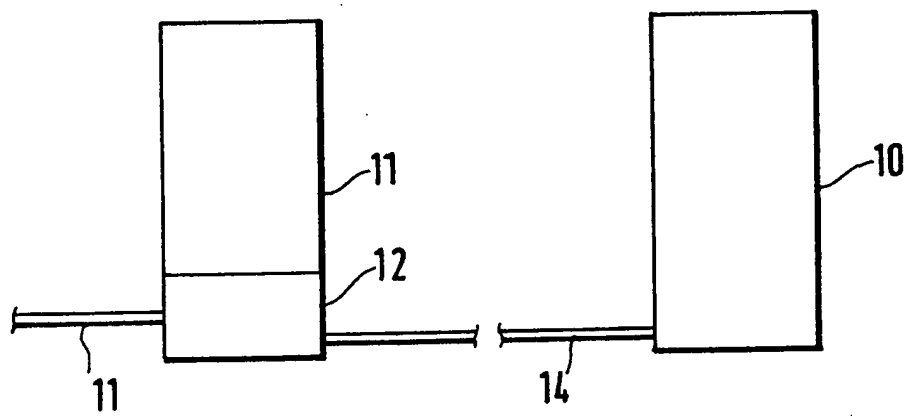


FIG. 1.

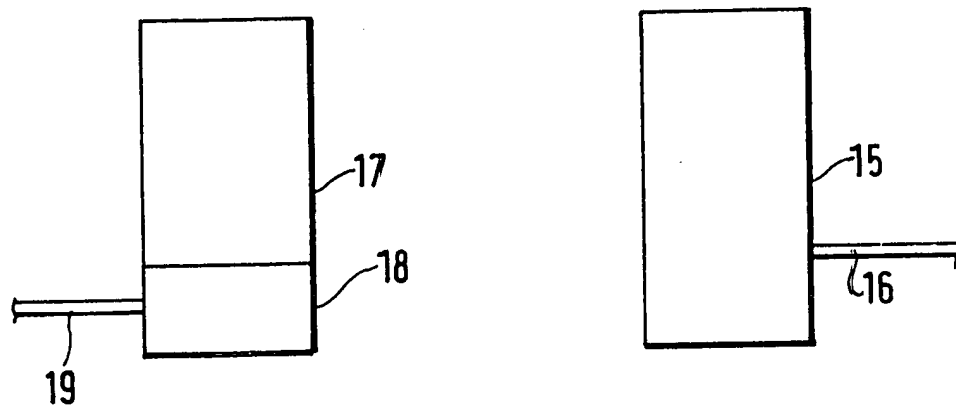


FIG. 2.

SPECIFICATION

R mote meter

5 This invention relates to a metering system for utilities such as gas, electricity or water or heating. It is conventional to record the amount of a utility, which is used by the consumer, on a meter.

10 It is also known to use a prepayment meter operable by coins or by a coded card.

In our patent application No. 8318719 we disclose a prepayment controller which is card operated and which incorporates a meter
15 which indicates the amount of the utility consumed.

In some situations, it is difficult for a meter reader to gain access to a convenient position within an apartment house or block of flats in which the prepayment controller is located.
20 In accordance with the present invention the prepayment controller and the meter are physically separated and the meter is remotely located adjacent the outside of the building

25 where the mains supply enters the building. For example a controller may be in a third floor flat, or apartment, and the meter may be in a basement or a garage adjacent the point at which the electricity supply cable, gas mains, or water main enters the building.
30 Preferably the meter has associated with it and also remotely located, a contactor which is arranged to interrupt the supply of the utility when the pre-paid credit runs out.

35 Preferably the cables connecting the contactor and/or the meter to the controller are low current cables. Control may be effected by low current pulses or signals.

Alternatively control may be effected by a
40 "ripple" control on the mains voltage i.e. the mains voltage may be modified by a superimposed special signal which acts as the control signal.

In the accompanying drawing is illustrated a
45 metering system for electricity, embodying the invention.

Figure 1 is a block diagram of such a system in which a low current connection exists between the controller and the meter;
50 and

Figure 2 is a block diagram of such a system in which control is exercised by "ripple" control signals on the mains voltage.

Fig. 1 is shown a controller 10 of the type
55 described in our co-pending application No. 8318719. The controller 10 will be operated by a coded card to provide the user with predetermined quantities of electricity, and will be located in a convenient place, for example on the kitchen wall. The meter 11
60 and contactor 12 are located, for example, in the entrance hall of the building which may be a block of flats, or in a basement, garage, or other remote location. The incoming supply
65 at 13 is fed via the contactor to the meter and

thence to use locations such as ring mains, lighting fittings, power-points etc. A low current cable 14 connects the controller 10 and contactor 12 so that when the pre-paid
70 amount of electricity has been used a signal will be sent along cable 14 to operate contactor 12 to disconnect the mains supply 13.

If cable 14 is cut the contactor will be opened and will remain open until an Engineer has reset this irrespective if cable is repaired or not.
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In Fig. 2 the controller 15 is connected to the mains supply 16 at a convenient point in the building and the meter 17 and contactor 18 are again remotely located and connected to the incoming mains supply 19. In this arrangement signals to operate the contactor 18, to connect and disconnect the mains supply, are conveyed via the mains wiring in the house. Ripple signals are generated within the controller 15 and imposed in the main supply at 16. The meter 17 and contactor 18 have a built in decoder to detect the ripple signals and respond to them.
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Advantages of this invention are:-
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(1) The meter can be located outside the building or at least within the building at the point where the mains cable enters the building. This avoids the necessity for bringing
90 heavy supply cables into the building.

(2) The controller can be located at any convenient point within the building quite independently of the location of the meter.

(3) Either a low current cable or no cable at all is used to convey the signals to the contactor from the controller.
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CLAIMS

1. A metering system for utilities comprises a prepayment controller and a meter,
105 the controller and the meter being physically separated and the meter being located adjacent the outside of the building where the mains supply enters the building.

2. A system as claimed in claim 1 in which the meter has associated with it also remotely located a contactor which is arranged to interrupt the supply of the utility when pre-paid credit runs out.
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3. A system as claimed in either claims 1 or 2 in which low current cables connect the contactor and/or the meter to the controller.
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4. A system as claimed in either claims 1 or 2 in which control is effected by means of a ripple pulse superimposed on the mains signal acting as a control signal.
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5. A system as claimed in any one of claims 1 to 4 in which the controller is operated by a coded card to provide the use
125 of a predetermined quantity of the utility.

6. A system as claimed in any one of claims 1 to 5 in which the utility is gas, electricity or water for heating.

7. A system as claimed in any one of
130 claims 1 to 6 in which the controller is located

in an apartment of an apartment building and the meter and/or contactor is located in the basement.

8. A system as claimed in any one of claims 1 to 7 in which means are provided for turning off the contactor if the control link between the controller and the contractor is interrupted.

9. A metering system for utilities substantially is hereinbefore described with reference to and is illustrated in the accompanying drawings.

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